MA 3675 - Complex Variables

Text: Complex Variables and Applications, Sixth Edition, by J. W. Brown and R. V. Churchill.

Course Description: Introduction to the fundamental concepts of complex variables and complex analysis. The topics covered will include:

Week 1	Chapter 1	Elementary arithmetic operations on complex numbers, representation of complex numbers in both polar and rectangular form.
Week 2-3	Chapter 2	Analytic functions, the Cauchy-Riemann equations, harmonic functions.
Week 4	Chapter 3	Complex trigonometric, logarithmic, exponential, inverse trigonometric, and hyperbolic functions.
Week 5-6	Chapter 4	Integration in the complex plane, Cauchy's theorem, the Cauchy integral formula, Morera's theorem, and Liouville's theorem.
Week 7-8	Chapter 5	Taylor series expansions of complex functions about any point of analyticity, Laurent series expansions in annuli, basic manipulations of power series.
Week 9	Chapter 6	Residues and poles, residue theorem and its applications, singular points.
Week 10-11	Chapter 7	Evaluation of integrals using residue theorem, argument principle and Rouché's theorem. Selected topics on conformal mapping.

Kw 5/99